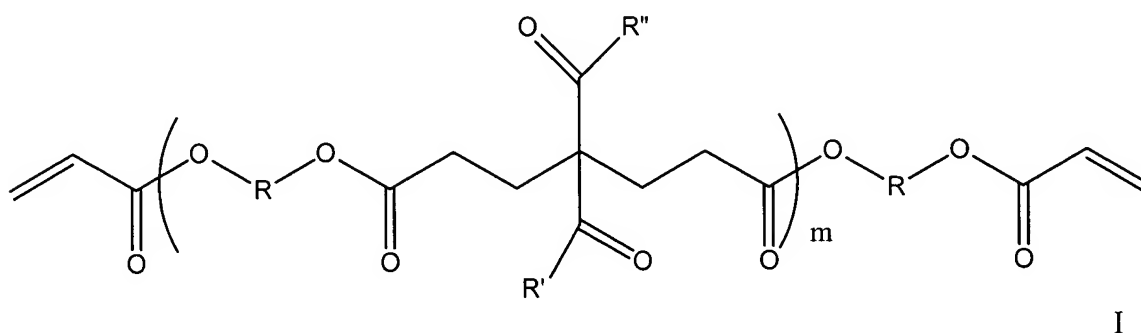


What is claimed is:

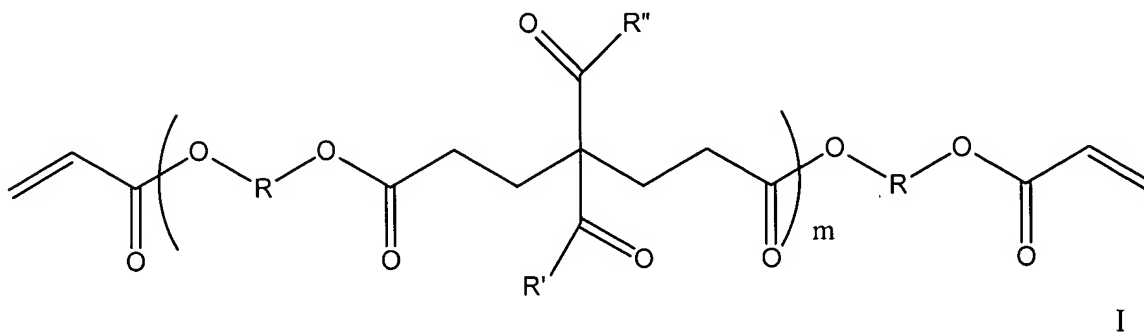
1. A photoresist comprising a hydrophilic compound which generates a free-radical integral to the compound.
2. The photoresist of claim 1, wherein the hydrophilic compound is derived from the Michael addition reaction of at least one diketone or acetoacetate derived functional donor compound and at least two multifunctional acrylate receptor compounds.
3. The photoresist of claim 2, wherein the hydrophilic compound is an oligomer with a formula:



where m is an integer of 1 or greater; R' and R'' are the same or different and comprise unsubstituted or substituted (C₆-C₁₄)aryl, linear or branched (C₁-C₁₅)alkyl, linear or branched (C₂-C₁₅)hydroxyalkyl, substituted or unsubstituted (C₅-C₁₄)heterocyclic aryl where the heteroatom is S, N, or O, linear or branched (C₁-C₅) aminylalkyl; or -O-R''' where R''' is the same as R' or R''; and R is a group derived from acid functional monomers, non-acid functional monomers, alkylene oxides, polyesters, urethane oligomers, or mixtures thereof.

4. The photoresist of claim 3, wherein R' and R'' are the same or different and comprise (C₁-C₅)alkyl, (C₁-C₅)hydroxyalkyl, (C₁-C₅)dihydroxyalkyl, (C₁-C₅)alkoxy, (C₂-C₈)carboxylalkyl, (C₁-C₈)aminylalkyl, (C₁-C₅)thioalkyl, unsubstituted or substituted phenyl, unsubstituted or substituted phenoxy, -NR₁R₂ where R₁ and R₂ are the same or different and are hydrogen or (C₁-C₃)alkyl or (C₁-C₄)hydroxyalkyl.
5. The photoresist of claim 3, wherein m is an integer of from 1 to 100.
6. The photoresist of claim 1, wherein the hydrophilic compound comprises from 25% by weight to 95% by weight of the photoresist.

7. The photoresist of claim 1, further comprising a polymer binder, α,β ethylenically or acetylenically unsaturated monomers, photoinitiators, plasticizers, rheology modifiers, fillers, dyes, film forming agents, strippers, or mixtures thereof.
8. The photoresist of claim 7, wherein the polymer binder is a branched polymeric binder comprising as polymerized units one or more difunctional branch-point monomers having two polymerizable end groups and a backbone comprising one or more base cleavable functionalities.
9. The photoresist of claim 3, wherein R provides sufficient acid groups such that the photoresist is developable with an aqueous or aqueous base solution.
10. The photoresist of claim 1, wherein the free-radical is from a pendent ketone substituent.
11. A method of forming a pattern comprising:
 - a) forming a photoresist layer on a substrate, the photoresist comprises a hydrophilic compound which upon exposure to actinic radiation generates a free-radical integral to the compound;
 - b) imagewise exposing the photoresist to actinic radiation; and
 - c) developing the imagewise exposed photoresist to form the pattern.
12. The method of claim 11, wherein the hydrophilic compound is an oligomer with a formula:



where R' and R'' are the same or different and comprise unsubstituted or substituted (C₆-C₁₄)aryl, linear or branched (C₁-C₁₅)alkyl, linear or branched (C₂-C₁₅)hydroxyalkyl, substituted or unsubstituted (C₅-C₁₄)heterocyclic aryl, or linear or branched (C₁-C₅)aminylalkyl; or -O-R''' where R''' is the same as R' or R''; and R is a group derived from acid functional monomers,

non-acid functional monomers, alkylene oxides, polyesters, urethane oligomers, or mixtures thereof.

13. The method of claim 12, wherein R' and R'' are the same or different and comprise (C₁-C₅)alkyl, (C₁-C₅)hydroalkyl, (C₁-C₅)dihydroxyalkyl, (C₁-C₅)alkoxy, (C₂-C₈)carboxyalkyl, (C₁-C₈)aminylalkyl, (C₁-C₅)thioalkyl, unsubstituted or substituted phenyl, unsubstituted or substituted phenoxy, -NR₁R₂ where R₁ and R₂ are the same or different and are hydrogen or (C₁-C₃)alkyl or (C₁-C₄)hydroxyalkyl.

14. The method of claim 12, wherein m is an integer of from 1 to 100.

15. The method of claim 12, wherein the photoresist further comprises a polymer binder, α,β ethylenically an acetylenically unsaturated monomers, photoinitiators, plasticizers, fillers, dyes, film forming agents, rheology modifiers, strippers, or mixtures thereof.

16. The method of claim 12, wherein R provides sufficient acid groups such that the photoresist is developable with an aqueous or aqueous base solution.

17. The method of claim 12, wherein R', R'' and R''' absorb light at a wavelength of 300 nm to 365 nm or greater.

18. The method of claim 12, wherein the oligomer comprises from 25% by weight to 95% by weight of the photoresist.

19. The method of claim 11, wherein the free-radical originates from a ketone substituent on the oligomer.

20. The method of claim 11, wherein the substrate is a printed wiring board.